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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------|------------------|
| 09/743,531 | 06/05/2001 | Hirofumi Ohmari | 010006 | 4037 |
| 23850 7590 11/13/2003 ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006 | | | EXAMINER BUSHEY, CHARLES S | |
| | | | ART UNIT 1724 | PAPER NUMBER |

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,531

Applicant(s)

OHNARI, HIROFUMI

Examiner

Scott Bushey

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-- The **MAILING DATE** of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 8, and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fontein et al (Figs. 1, 4a and 4b; col. 1, lines 31-36; col. 7, lines 1-19).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fontein et al.

Fontein et al (Figs. 1, 4a and 4b; col. 1, lines 31-36; col. 3, lines 10-16, 38-41, 49-57, 72-75; col. 4, lines 12-15; col. 7, lines 1-19) as has been applied above substantially disclose applicant's invention as recited by instant claims 3-5, 8, and 9, except for the plural liquid inlets and their respective placement within the gas-liquid contacting apparatus as disclosed by Figure 1 of the reference. Fontein et al (Figs. 4a and 4b) do however envisage the use of multiple, tangential pressure liquid inlet streams placed along the circumferential wall of the contact space to improve contact between the phases. It would have been obvious for an artisan at the time of

the invention, to provide the device of Figure 1 of the reference with plural, tangential liquid inlets along the circumferential wall of the contact space to improve contact between the phases, in view of the teachings envisaged within the same reference. Furthermore, although the reference is largely silent as to the dynamic mechanism through which contact between the phases occurs within the disclosed device, the fact that the applied reference teaches an apparatus that anticipates applicant's apparatus would suggest to one having ordinary skill in the art that the method of contact between the phases, as recited by instant claims 8 and 9, would have been obvious to one having ordinary skill in the art at the time of the invention.

Response to Arguments

5. Applicant's arguments filed November 3, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that the reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., formation of bubbles having such size and quantity as embodied in the disclosed invention) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant also states that the positional relationship between the liquid inlet and liquid outlet and the length of the micro-bubble cavity are clearly defined by the instant claims, while the reference allegedly fails to define such a structure capable of generating the desired micro-bubbles. However, applicant must note that the claims have been examined as written, not as apparently intended to include all of the disclosed features from the instant application. With

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respect thereto, applicant alleges that the reference teaches a system wherein depressurization of the fluid is obstructed, while, "the present invention, on the other hand, is not constricted so that in the claimed system pressure is instantly discharged from a high-pressure region (the inner region) to a low-pressure region (the outer region)." Such an argument is irrelevant since nowhere in the instant claims is there recited, "a high-pressure region", "an inner region", a low-pressure region", nor "an outer region". The closest the instant claims approach applicant's arguments are by the recitation within the claims that a pressurized liquid is fed into the interior space of a container. Clearly, the Fontein et al reference also teaches that a pressurized liquid is fed into the interior space of a container for contact with a gaseous phase, and as such the reference must be considered to anticipate or render obvious applicant's invention as recited by the instant claims.

Finally, as stated previously by the undersigned, Fontein et al clearly and unequivocally teach dispersion of the gas stream within the liquid stream(s). Since there can be no dispersion of one phase within another without intimate contact between the phases, and in view of the fact that Fontein et al clearly teach an apparatus and method of operating such, which is identical to that as recited by applicant's claims, one having ordinary skill in the art would find Fontein et al to either anticipate applicant's invention, or at least render such obvious at the time of the invention.

Conclusion

6. This is an RCE of applicant's Application No. 09/743,531. All claims are drawn to the same invention claimed in the earlier application prosecution and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the

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earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

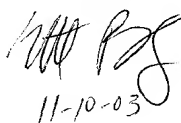
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is (703) 308-3581. The examiner can normally be reached on Monday-Thursday 6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine R. Copenheaver can be reached on (703) 308-1261. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Scott Bushey
Primary Examiner
Art Unit 1724



11-10-03

csh
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